



2066969

MIRD No. 412552-17

DATA EVALUATION RECORD

1. **CHEMICAL:** ortho-Phthalaldehyde
Shaughnessey No. 129017.
2. **TEST MATERIAL:** ortho-Phthalaldehyde Technical 99% A.I.
(Cidex[™])
3. **STUDY TYPE:** Freshwater Invertebrate 48-hour Acute Toxicity
Test. Species used: Daphnia magna.
4. **STUDY ID:** Beglinger, J.M. and R.J. O'Boyle. 1989. Acute
Aquatic Effects of o-Phthalaldehyde on the Daphnid, Daphnia
magna. Health and Environment Laboratories, Eastman Kodak
Company, Rochester, NY for Surgikos, Inc., Arlington, TX.
5. **REVIEWED BY:**

Clyde R. Houseknecht
Wildlife Biologist
EEB/EFED

Signature: *Clyde Houseknecht*
Date: 1/4/90
6. **APPROVED BY:**

Henry T. Craven, Head
Review Section #4
EEB/EFED

Signature: *Henry T. Craven*
Date: 1/5/90
7. **CONCLUSIONS:** The reported 48-hour acute EC50 toxicity value
of 0.087 ppm not be confirmed because of excessive mortality
in all treatment groups. The acute NOEC level could not be
determined due to observed adverse effects in all test
dosages.
8. **RECOMMENDATIONS:** N/A

"FOSTECH"
= film technology
= ground floor
= shiva tech - 1

9. **BACKGROUND:** N/A
10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A
11. **MATERIALS AND METHODS:**

A. Test Animals: Daphnids used in this study were reared in colonies maintained within the Eco-Chem Testing Group facility. Brood stock daphnids received a continuous supply of filtered-treated-tempered water for at least two weeks prior to production of the neonate daphnids used in the test.

B. Test System: Water used in this study was pumped from Lake Ontario by the Kodak Park Lake Station Water Treatment Facility into a large underground storage reservoir. The water subsequently was pumped into the laboratory where it passed through 3-micron polypropylene filter tubes, a series of activated-powdered carbon filter tubes, and through another set of 3-micron polypropylene filter tubes. The water was tempered to a temperature of $20 \pm ^\circ\text{C}$ by passage through a heat exchange unit. The filtered water was piped through stainless steel tubing. Hardness and total alkalinity (both as CaCO_3) were 130 and 100 mg/l respectively.

On the day before the start of the test, approximately 100 gravid adult daphnids were transferred by pipet into 20 cm diameter bowls each containing a liter of diluent water. Adult daphnids were not fed during the production of neonates. The neonates produced in the subsequent period that did not exceed 24 hours were the first instar daphnids used to start the test. Sequential randomization was used to allocate to each test vessel no more than 50% of any one set of test organisms at a time. Ten daphnids were placed into each replicate test vessel.

Two replicate test vessels were prepared for each test concentration. Test vessels were 600 ml glass beakers containing 400 ml of the exposure solutions. Test organisms were kept on a photoperiod of 16 hours light and 8 hours dark with a 20-minute transition period. Temperature, dissolved oxygen, and pH were measured at times 0, 24, and 48 hours.

C. Dosage: The test consisted of a geometric series of five dosage groups and a control group. Nominal dosages were 0.2, 0.4, 0.8, 1.5 and 3.0 ppm. Average measured concentrations were 0.097, 0.200, 0.43, 1.6, and 2.3 ppm.

D. Design: Freshwater invertebrate, 48-hour, static-renewal, acute toxicity study.

E. Statistics: The LC_{50} value was calculated using a computer program developed by ASTM (1987).

12. **REPORTED RESULTS:** There was no mortality in the control

group. Sixty percent, 75%, 100%, 100% and 100% of test daphnids died in treatment groups one to five respectively.

13. **STUDY AUTHOR'S CONCLUSION/QUALITY ASSURANCE MEASURES:**

The Daphnia magna 48-hour acute EC_{50} value for O-Phthalaldehyde technical was determined to be 0.087 ppm (95% confidence limits 0.030 - 0.12 ppm). An exact numerical value for the acute NOEC for daphnids could not be determined from this test due to observed adverse effects in all treatment groups. Eastman Kodak Company warrants that this study conforms with Good Laboratory Practices as published by the U.S. Environmental Protection Agency.

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**

A. Test Procedures: The procedures were in accordance with EPA's Standard Evaluation Procedure for Freshwater Invertebrate 48-hour Acute Toxicity Test except in one respect. The SEP suggests the use of soft water with a hardness of 40 - 48 mg/l. The water used in this study had a hardness of 130 mg/l.

B. Statistical Analysis: Mortality data were reanalyzed with the E.P.A.'s Toxinal program. The results agreed with those reported by the authors.

C. Discussion/Results: The lowest treatment rate resulted in 60% mortality thus the calculated EC_{50} is statistically suspect. In addition, it was impossible to determine the NOEC because of effects at all treatment levels.

D. Adequacy of the Study:

- (1) **Classification:** Supplemental.
- (2) **Rationale:** See 14(C) above.
- (3) **Repairability:** Not repairable.

15. **COMPLETION OF ONE-LINER:** N.A.